AMENDMENTS TO THE CLAIMS

The following claim set replaces all prior versions, and listings, of claims in the application:

1. (Currently Amended) A disposable cartridge for mounting an extracorporeal blood passage on a blood pump device comprising:

a. ~~said~~ a cartridge ~~attachable to said blood pump and said cartridge supporting an attached blood passage,~~housing supporting said blood passage and further comprising a latch, wherein said cartridge housing fits into a recess of the blood pump device and said latch releasably attaches to the blood pump device when the housing is fitted into the recess;

b. a pump coupling loop of the blood passage fixed to the housing and extending outwardly from said housing, wherein ~~the~~ a blood pump of the device engages the pump coupling loop ~~blood passage~~ when said cartridge housing latch is attached to the blood pump device, wherein through said blood passage flows blood withdrawn from a patient and said blood pump draws blood from the patient, and

c~~b~~. an electronic pressure sensor fixed to the cartridge housing, where the pressure sensor is arranged to sense a pressure in the blood flow through the blood passage of the cartridge and outputs an electrical signal indicative of the pressure, wherein the pressure sensor is structurally separated from said blood pump, and wherein said sensor has a fluid passage having an internal diameter substantially the same as an internal diameter of the blood passage.

2. (Original) A cartridge as in claim 1 wherein an electrical signal is a voltage level indicative of the pressure.

3. (Currently Amended) A cartridge as in claim 1 further comprising a second cartridge housing supporting a second pump coupling loop of the blood passage and a blood filter coupled to the blood passage, and the blood passage further includes a blood return line extending from the second cartridge to return blood to the patient, wherein the second cartridge housing further comprises a latch which releasably engages the blood pump device when the second cartridge housing is fitted into a second recess in the housing and when said second loop engages a filtrate pump of said pump device .

4. (Currently Amended) A cartridge as in claim 3 further comprising a filtered fluid passage extending from the filter and affixed to the second cartridge housing, and a second pressure sensor in the filtered fluid passages sensing a pressure of filtered fluid flowing through the filtered fluid passage.

5. (Currently Amended) A cartridge as in claim 1 further comprising a pressure sensor housing affixed to the first cartridge housing for the pressure sensor, where the pressure sensor housing includes a smooth tubular channel contiguous with the blood passage fixed to the first cartridge housing and the pressure sensor is mounted flush with a wall of the ~~channel~~first cartridge housing.

6. (Currently Amended) A cartridge as in claim ~~1~~ 3 where ~~the~~ a second pressure sensor is integrated into the housing of a hemofilter and the hemofilter is mounted on the second cartridge housing.

7. (Currently Amended) A cartridge as in claim 1, where the pressure sensor and ~~the~~a pump coupling loop of the blood passage are ~~mounted on~~rigidly fixed to the first cartridge housing and the cartridge detachably attaches to the pump device adjacent to a raceway of ~~such that~~ the blood pump ~~device engages~~ and said raceway receives the loop when the first cartridge housing is inserted into the recess of the pump device.

8. (Previously Presented) A cartridge as in claim 7 where the blood passage is formed of transparent material so that the blood flow is visible.

9. (Currently Amended) A cartridge as in claim 7 wherein the cartridge is disposed of after treatment of the patient and after being released from the pump device.

10. (Original) A cartridge as in claim 3 wherein the filter is of a group consisting of a hemodialyzer, hemofilter or hemoconcentrator, and the filter includes an integral pressure sensor embedded in a blood passage wall of the filter.

11. (Original) A cartridge in claim 10 where the pressure sensor is in fluid contact with the blood.

12. (Original) A cartridge as in claim 4 where the second pressure sensor is embedded in the filter and is in fluid contact with the filtered fluid.

13. (Original) A cartridge as claim 1 wherein the pressure sensor is sealed in a pressure sensor housing formed of a biocompatible and flexible material, and the sensor housing includes an integral and flexible membrane in contact with the blood and electronic sensors.

14. (Original) A cartridge as in claim 1 wherein the pressure sensor includes a pressure responsive diaphragm exposed to the blood flow and a mechanical-to-electric transducer coupled to the diaphragm and having an electrical signal output indicative of the pressure of the blood.

15. (Original) A cartridge as in claim 14 wherein the mechanical-to-electric transducer includes a strain gain bridge or capacitive element to convert displacement of the diaphragm to said electrical signal.

16. (Currently Amended) A disposable extracorporeal blood circuit for processing blood from a mammal comprising:

a blood passage having a blood withdrawal port connectable to a withdrawal peripheral blood vessel of the mammal, a blood return port connectable to a return peripheral blood vessel of the patient, and a blood passage between the withdrawal port and the return port through which blood flows wherein the blood passage has a smooth and continuous wall throughout the passage;

a pressure sensor having a fluid passage having a uniform internal diameter substantially the same as an internal diameter of the blood passage, and said fluid passage having a fluid inlet or outlet coupled to said blood passage, and a fluid pressure responsive element flush with a wall of the fluid passage,

a blood filter having a blood inlet and a blood outlet both coupled to said blood passage such that the blood flows through said filter, and said filter further comprising a filtrate output coupled to a filtrate line, ~~and~~

a first cartridge housing to which is attached a loop of the blood passage~~,~~ and ~~the~~ pressure sensor ~~and blood filter~~, and said first cartridge housing is detachably mountable to a blood treatment device to engage the loop to ~~a~~ blood pump when the first cartridge housing is mounted on the device, and wherein said cartridge includes an electrical connection for electrically coupling the pressure sensor to the blood pump,

a second cartridge housing to which is attached a filtrate loop of the filtrate line and the filter, wherein said second cartridge housing is detachably mountable to the device to engage the filtrate loop to a filtrate pump of the blood treatment device.

17. (Original) A disposable extracorporeal blood circuit as in claim 16 wherein said blood passage includes a tubular withdrawal line connectable to a first catheter inserted into the first peripheral blood vessel and to said pressure sensor, a tubular blood circuit line connecting the pressure sensor and the blood inlet of the filter, and a tubular return line connected to the blood outlet of the filter and connectable to a catheter inserted in said second peripheral blood vessel.

18. (Original) A disposable extracorporeal blood circuit as in claim 17 wherein the tubular blood circuit line is connectable to a roller blood pump of the blood pump.

19. (Original) A disposable extracorporeal blood circuit as in claim 16 wherein the withdrawal and return peripheral blood vessels are the same blood vessel.

20. (Original) A cartridge as in claim 4 further comprising a third pressure sensor arranged to sense a blood pressure in return blood passage included with the disposable cartridge.

21. (Original) A cartridge as in claim 14 further comprising electrical signal connectors extending from the pressure sensor on the cartridge to a detachable electrical coupling on the blood pump device.